CLIPPEDIMAGE= EP000905786A1
PUB-NO: EP000905786A1
DOCUMENT-IDENTIFIER: EP 905786 A1
TITLE: **Capacitor** having a barrier layer of transition metal phosphide, arsenide, or sulphide
PUBN-DATE: March 31, 1999
INVENTOR-INFORMATION:

NAME	COUNTRY
HINTERMAIER, FRANK	DE

EUR-CL (EPC): H01L021/02; H01L021/8247, H01L027/115 ABSTRACT:
An integrated circuit **capacitor** has a transition metal phosphide, sulfide or arsenide barrier layer below the **capacitor** dielectric. An integrated circuit **capacitor** has (a) its lower electrode (11) connected directly or via a connection structure (7) to a doped region (3) in a semiconductor substrate (1); and (b) a **barrier layer (10) of a compound of a transition metal and phosphorus, sulfur** or arsenic below the **capacitor** dielectric (12). Independent
claims are also included for producing the above **capacitor** by forming the barrier layer (10) over the entire exposed surface of the doped region (3) or the connection structure (7) or on the lower electrode (11).
INT-CL_(IPC): H01L027/115; H01L021/3205
ABSTRACT:
An integrated circuit **capacitor** has a transition metal phosphide, sulfide or arsenide barrier layer below the **capacitor** dielectric. An integrated circuit **capacitor** has (a) its lower electrode (11) connected directly or via a connection structure (7) to a doped region (3) in a semiconductor substrate (1); and (b) a **barrier layer (10) of a compound of a transition metal and phosphorus, sulfur** or arsenic below the **capacitor** dielectric (12). Independent
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TTL:
Capacitor having a barrier layer of transition metal phosphide, arsenide, or

sulphide

FPAR:
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Independent
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CLIPPEDIMAGE= JP411163276A
PUB-NO: JP411163276A
DOCUMENT-IDENTIFIER: JP 11163276 A
TITLE: **CAPACITOR** HAVING BARRIER LAYER AND ITS MANUFACTURE
PUBN-DATE: June 18, 1999
INVENTOR-INFORMATION:

NAME	COUNTRY
HINTERMAIER, FRANK DR	N/A

INT-CL_(IPC): H01L027/04; H01L021/822 ; H01L027/108 ; H01L021/8242
ABSTRACT:
PROBLEM TO BE SOLVED: To avoid oxidation of a barrier during high-temperature
treatment and to obtain a high capacity with a small required area by using mainly transition elements on the one hand and using a compound comprised of
phosphorus, **sulfur or arsenic, namely a phosphide of transition metal as**
barrier layer on the other hand.

SOLUTION: A MOS insulating layer 6 covers a transistor. In this case, a doped
area 3 is provided with a connection structure 7 comprised of tungsten. Such a
structure is subjected to heat treatment in an atmosphere of PH3* for forming a
barrier layer. During treatment, a barrier layer 10 is formed with self matching on the connection structure 7 by reaction of tungsten with PH3*. A first lower electrode 11 of a **capacitor** is formed by sputtering of a platinum layer and by adequate structuring. Consecutively, a high

TTL:
CAPACITOR HAVING BARRIER LAYER AND ITS MANUFACTURE

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